

PROGRAM CONCERNING THE NECESSARY MEASURES IN THE CIRCUMSTANCES OF TREND TO DROUGHT

In the last decade in Bulgaria a decrease of fresh water supplied by natural hydrological cycles should be noticed. The average annual run off during the period of 1961 – 1999 is less with 6.7 % than the one during the period of 1935 – 1984 and adds up to 19 433 mil m. In particular the run off decrease is considerable during the period of 1985 – 1995 – with 40 %. This trend forms as well as under the influence of natural run off variations so in the result of the sudden changes in the climate. Based on climate patterns the weather forecast outline a trend to global weather thaw of the planet and drought in the area of Mediterranean region where our country belongs as well. This circumstance together with temperature increase which raises the physical and biological evaporation will bring to accumulation in the reservoirs of less water volume that is used for water supply, irrigation and for electric power generation.

The drought forecast as well as the displayed at the present moment troubles in drinking and domestic water supply and the ensurance of water for agricultural purposes in different regions and settlements, demand to attempt urgent measures to avoid the consequences of the future trend to decrease of fresh water. To satisfy the public requirements with drinking and domestic water for 4520 settlements with built but worn out infrastructure which provide with water 87.7% or 100 % of the cities and 84% of the villages, where 98% of population is living, cause an increase of water resources consumption.

A guarantee for this great ensurance is the circumstance that the water supply systems is provided with water from big multiannual and seasonal reservoirs or ground waters. They act like annual reservoirs, and for such regions like Dobruja- as well as multiannual reservoirs.

At the moment 493 settlements with 1 167 608 inhabitants are with water supply regime. The most affected settlements with water supply regime are in the regions of Vratza, Gabrovo, Pernik, Blagoevgrad and Montana.

Very peculiar are the crisis of water supply and of irrigation for the most part of settlements, situated on the western slopes of Rila Mountain (Western Aegean Region). This region is with the largest water excess (the run off exceeds the water consumption 8 times per year with 90% run off security.). There is a lack of accumulated water volume. So during the droughty years not only the irrigated fields, situated at river basin, but also the public water supply systems are the victim of chronic water shortage (towns of Dupniza, Blagoevgrad, Pernik, Kiustendil) nevertheless that during the spring high flow period millions of cubic meters water runs out the country without to be utilized.

Similar is the situation in some other different big towns in the country – Vratza, Montana, Lovech, Troian, Pleven, Gabrovo, Sevlievo, Triavna.

Almost every year a restrictive water supply regime is imposed in settlements that use for drinking and domestic water supply the non regulated river water. The duration and extend

of restrictions are determined by water run off regime in the rivers. In the conditions of long term drought (the present 2000 year is a typical example for such drought) the water discharge in the rivers is decreasing gradually and months on end is less than that required for drinking and domestic water supply.

That part of Bulgaria, situated at hilly and hilly – flat regions and characterized as with a small and variable surface run off and with insufficient ground water resources, mainly in the region of Ludogorie, Fore- Balkan, Eastern Balkan, Kraishte, Eastern Rhodope mountain, Strandja and Sakar. The population in these regions feel sharp need of water for animal drinking pool, irrigation, recreation, non-economic fishing and other kind of water use. At the present time the water from drinking and domestic water supply system is used for these purposes, but that causes trouble with drinking and domestic water supply in many regions and during the long periods of the year.

It is established by the practice in water economy that to ensure the population with drinking water, irrigation water, and water with drinking qualities for industrial purposes, considerable funds are necessary. Because of that the problems should be decide successfully only when they are considered in perspective and in time.

The latest built up reservoirs in Bulgaria are at the beginning of 80 years. Most of them are not used economically and by purpose - particularly micro reservoirs. Parts of the constructed irrigation systems are totally destroyed and plundered, the rest - do not work effectively. For example the irrigated areas in 1999 are only 5.7 % of areas that could be irrigated totally. There is a lack of vision and is an irresponsible behavior toward the irrigation problems and in ensurance with experts, solving the problems. This is realized through deleting the subject: “ Hydro melioration” and “ Hydro geology and engineering geology” from the subjects register in 1996.

Because of the overworked devices of the large part of the water supply distribution system, the water losses in there are considerable. On the average of the country the water losses are 57.3 % an in some regions – 70% - 75 %. Not small parts of these losses are related to water theft and bad management of the water systems.

The illegal water use is going on – theft, water use without legitimate reason, drinking water use for some other proposes

As a result of land reform the lands in flood reservoir areas are reverted to their owners. That imposes maintenance of water volumes on lower levels than that in the design, which means accumulating of less water volumes and incomplete use of reservoir potentials.

The main directions that have to be undertake immediately to provide administrative provisions, organizational and investment measures are: (see appendix 1 and 2)

- water resources preservation;
- overcoming the water supply crisis ;
- irrigation water supply ensurance:
- creation of knowledge and awareness for water resource savings;

Preservation of water recourse

Measures

1. Ensuring of the river basin water resources management, which allows at the highest degree the effective uses and precaution of water resources in accordance of defense of the national interests.
2. Additional run off regulation.
3. Ensuring of minimum permissible run off in the rivers.
4. Preservation or elimination of drillings, revealing the ground water release, which are not in use.
5. Ensuring of the wastewater treatment, that is discharged into water bodies
6. Elimination of drillings where the waters with different qualities are mixed and on this way the deeper clean waters are polluted.
7. Prevention of ground waters overdraft.
8. Updating and expanding of the water resource information system by using Geographic Information System (GIS).
9. Updating of water monitoring system, providing objective assessment of water resources and casting of their alterations.
10. Prohibition of the clear felling in water supply zones, with consequent artificial renovation except for acacia and poplar.
11. Forest managing improvement in water supply zone.
12. Struggle with erosion and reduction the quantity of unused run off water.
13. Afforestation with appropriates ligneous species.
14. Averting of forest fires and prohibition of set on fires the stubble and forests.
15. Prohibition of traffic for goods with dangerous substances in the frame of sanitary – protected zones of the roads and railways.

Crises in drinking and domestic water supply due to the irregular surface water run off distribution within the year and due to non-rational use of regulated water volumes

Measures

1. Constructing of water reservoirs for catching the water of spring high flow.
2. Renovation of water supply networks. Appropriate network zoning and their equipment with required facilities and plumbing in order to ensure with water volume the water supply input completely to be used.
3. Completing of projects with local importance for solving the problems with drinking and domestic water supply.
4. Designing and constructing of sanitary – protective zones around water resources for drinking and domestic water supply and regulating and control of protective regimes to be observed.
5. Ensuring of optional regulated water volume for the capital.

6. Ensuring of duplicate water supply from ground waters.
7. Ensuring of savings in water use in building plumbings.
8. Utilization of economic regulation instruments and water savings in regions with shortage of water resources.

Ensuring of irrigation water supply

Measures

1. Prohibition of drawing out reservoirs and microreservoirs to provide fishing and fishbreed.
2. Municipal mayors obliging, when giving the opportunities to concession for reservoirs and microreservoirs to force duties for concessionaires. They should ensure irrigation water in periods for irrigation.
3. Stimulation of the organized water use from surface waters for irrigation through water associations. Supporting in repair of building water sewage net, buying irrigation technology and in adopting the irrigation water saving technologies.
4. Utilization for irrigation the water from numerous reservoirs built to provide water for irrigation.
5. Stimulation of building the facilities for run off regulation rivers and gullies with small catchment areas for ensuring the demands of farms.
6. Covering of irrigation canals, building of irrigation pipelines, restricting the usage of shallow ground waters for irrigation, stimulation of building of the micro irrigation systems.
7. Stimulation and application of other different methods for save water use for irrigation.

Creating of knowledge and awareness for water resource savings

1. Energetic media policy – regular information of the society for the major problems and for the measures that have to be undertake for solving the problems
2. Creating of a new public attitude toward water, where the major point have to be the save water use in conditions of trends to drought in Mediterranean region.
3. Creating of regular editing for public information about the condition of water resources in the country at local and national level. They should include representatives to the Ministry of environment and water, Ministry of agriculture and forest, as well as local – governmental authorities, water supply companies and irrigation associations.
4. Public control and “ blue telephone” in municipalities, regional environment and water inspectorates, Water supply and sewage company (WSSC) in the cases of water saving and water waste..
5. Involving the non-governmental organizations (NGO,s) in the problem of water saving and decreasing of the wastewater.

NECESSARY MEASURES IN THE CIRCUMSTANCES OF TREND TO DROUGHT

Measures	Type of measure	Necessary funds		Authority and organizations		Time limit deadline	
		Price (Thousand Lw.)	Sources of financing	Leading	Subservient	Start	Final
1	2	3	4	5	6	7	8

WATER RESOURCES PRESERVATION

IMMEDEATE MEASURES								
1.Ensurance of minimum permissible run off the rivers - from facilities- public and state property; - from facilities –public and municipal property; - from facilities – private property	O L / O O			MOEW Mayors MOEW MOEW	MRDPW, MAF SAEER Concessionaires Owners MRDPW, MAF,SAEER	Immediately		
2.Prevention from ground water over exploitation through permits for water use whereas water monitoring data.	O			MOEW	Water users	Immediately		
3. Updating of water monitoring system ,that ensure objective assessment of water resources and casting of their alterations: - expanding - current maintenance - obligation for implementation of self monitoring	I O L / O	2 000	State budget	MOEW MOEW	BAS,NIMH Physical and legal persons	2001 immediately	2005	

1	2	3	4	5	6	7	8
					whose activity have an effect on the water condition		
4. Improving the institutional structure for water management.	O / I	4 000	State budget	CM	MF	2001	2002
5 Prohibition on the clear felling with the following artificial renovation in water supply zones except acacia and poplar	L / O			MAF MOEW	CM	Immediately	
- 6.Averting of the forest fires and prohibition of set on fire the stubble and forests - improving the organization of forest fire set out. - prohibition on changes in destination of forestry enterprise lands after fires	L / O L / O			MAF MAF	Municipal mayors, MAF,MOEW Municipal mayors	Immediately	
7.Prohibition in the frames of sanitary – protected zone of roads and railways on trespassing of goods with dangerous substances, that contaminated ground and surface waters	L / O			MRDPW W, MH, MRDPW	MT,MIA, Municipal mayors, governors	Immediately	
- Total (in thousand lw)	6 000						

NECESSARY MEASURES FOR DEVELOPING OF PLAN AND SCHEDULE FOR REALIZATION

1	2	3	4	5	6	7	8
1. Ensuring of the management of the transboundary river basin water resources that allows in the highest degree the effective use and preservation of water resources , in accordance of defense of the national interests	C			MOEW	MFA	2002	2010
2. Ensuring of domestic and wastewater treatment, discharged into the water bodies.	I	560 257	State budget, funds from firms and municipalities , foreign funds	MOEW	Municipal mayors, "WSS C"	National Program for built up areas 2002 - 2010	
3. Ensuring of industrial wastewater treatment discharged into the water bodies.	I		Firms capital investment, Credits from NFOOS	MOEW	Firms	Immediately	
4. Preservation of drillings, revealing ground waters release that are not in use.	I	500	State budget	MOEW	Municipal mayors	2001	2003
5. Elimination of drillings where waters with different qualities are mixed and cause pollution of deeper clean waters	I		Firms capital investments, credits from NFOOS	MOEW	Owners	2001	2005
6. Updating and expanding of the water resource information system by using GIS	I	500		MOEW		2001	2002

7.Struggle with erosion and reduction of quantity of run off water, that is not in use; - stimulation of cultivation the forests with mixed coniferous and deciduous trees and multistage mixed forests with coniferous and deciduous trees. - stimulation of cultivation and breeding of the perennial agriculture crops on erosive lands (fruit species ,raspberries,black berries,vineyards) especially in regions that are in danger of permanent drought and on erosive and on slopping lands in the reservoir catchment areas - renovation and dressing on natural non-mowed meadows and pastures in hilly and mountain regions with priority over erosive lands particularly in regions with trend to drought. - struggle by technical means with erosion – building of barrages,stone thresholds,fascine etc - designing of new forest shelter belts in regions like Dobrudga,"Zlatiata" Montana.North Bulgaria. .	0/I	100 000	State Budget. personal capital funds	MAF, owners and lease holdero f agricult ure lands	MOEW ,MF MTCR	2001	2010
		100 000			MOEW, MF	2001	2010
		100 000			MOEW MF	2001	2010
		50 000			MOEW MF municipal mayors, governor	2001	2010
		50 000			MOEW, MF governor, municipal	2002	2010

					mayors		
- working out programs for implementation of the measures, that are stipulated	o				MOEW	immediately	2002
8 Averting of forest fires and prohibition on set on fires the stubble and forest -equipping of Civil defense with proper facilities for putting out the fire. - forest management plan – fire precautions	I L/O/ I	100 000 20 000	State budget State budget	CD CD	Municipal mayors, MAF Municipal mayors, governor, MAF, MOEW	2001	2002
9 Afforestation of erosive lands with proper ligneous species like drought resistant local species and imported species (oak - cork tree, cedar, cypress) to 50 000 dka per year.	I	62 500	State budget	MAF, MOEW , municipal mayor	MF, MT	2001	2010
Total (thousand. lw)		1 143 757					
Total (thousand.lw.)		1 149 757					

**CRISES IN DRINKING WATER SUPPLY DUE TO THE IRREGULAR SURFACE
WATER RUN OFF DISTRIBUTION WITHIN THE YEAR AND DUE TO NON
RATIONAL USE OF WATER VOLUME**

1	2	3	4	5	6	7	8
IMMEDEATE MEASURES							
1.Compliting and overbuilding the construction with highest priority and highest public effect of water reservoirs for catching the water of spring high flow: HW“Hristo Smirnenski” HW“Srrechenska bara” HW“Nejkovtchi” HW“Kiustendil” HW“Indge voivoda” HW“Plovdiv” HW“Rakotchevitca” (the indicated investments are for 2001)	I	5 000 3 000 9 500 10 000 5 000 10 000 3 000	State budget	MRDPW	MOEW.MF, municipal mayors	Immedia tely	
2. Ensuring of save water use in building plumbing; -updating of standards for designing of “W SSC” plumbing in buildings according European requirements - decreasing of water over consumption by means of improving the available plumbing ,through installing of aerators and capacity controllers , sinks and showers for public places like	I L / I		Personal capital funds	MRDPW MRDPW, “W SSC”		Im me dia tel y Im me dia tel y	

public baths,swimming pools,stadiums,resaurants,caf eterias etc. -installing of pressure regulators onto the plumbing branches of lower buildings and flats on lower stages. -replacement of systems using drinking water (cooling of units,swearing pools water supply) and using turn over systems -adopting of water supply systems,using conventional clean waters for sanitary-domestic use particularly in public buildings and enterprises	O / I		Personal capital funds	“W SSC”		20 01	20 08
	L /O/I		Personal capital funds	MRDPW, Firms		20 02	20 10
	L/O/I		Personal capital funds	MRDPW, Firms		20 02	20 10
.3. Designing and constructing of sanitary – protective zones around water supply resources for drinking water supply: -for reservoirs,which waters are in use. -for drinking and domestic water supply. -prohibition of all kind of activity for water resources , situated over 800 m above sea level in the regions from water receiver to water shed until establishing and regulating of the protective regimes -for the rest water resources that have no established sanitary protective zone	O/I	1 000	State budget, municipal budget, personal capital funds of water supply association	MRDPW, municipal mayors, “W SSC”	MF,MOEW, MH,MAF	Im media tel y	20 01
	L/O/I	100		MOEW, MRDPW MH	MAF	Im media tel y	20 03
	O / I	300		MRDPW’ municipal mayors, “W SSC”	MF,MOEW, MH’MAF	im media tel y	

1	2	3	4	5	6	7	8
-prohibition in the frames of sanitary protective zones on mining. -dispersal of fertilizers and pesticides by aeronautical means. -laying the pipe line and building the reservoirs and depository for dangerous substances. -building of pig breeding farms, processing and storage of radioactive substances .	L / O			MOEW	MRDPW, "WSSC"		
4. Restriction of drinking water supply of water with drinking qualities from water associations for some other reasons in the regions with water deficiency -updating of water consumption for drinking and industrial needs. -regulating of the water quantities for different purposes in the license for water use. -developing of new water consumption standards for drinking and domestic purposes.	O O L/O	400	State budget, municipal budget	MRDPW, municipal mayor MOEW MAF MRDPW,	MOEW MRDPW, "WSSC" MOEW	2001 Immediately Immediately	2002

1	2	3	4	5	6	7	8
<p>5.Introducing of economic regulation instruments against the water waste in drinking and domestic water supply by regulating of different water prices for normative consumption per capita of population and the quantity supplied over this rate.</p> <p>-introducing of water consumption rates for drinking and domestic use.</p> <p>-differentiating of the charges for water use depending on the rates of water consumption .</p> <p>-differentiating of the charges for water consumption depending on the seasons.</p>	L			MRDPW MOEW	MF	Immediately	
Total (thousand.lw)		47 800					

MEASURES DEMANDING TO DEVELOP PLAN AND SCHEDULE FOR REALIZATION

1	2	3	4	5	6	7	8
1. Construction of water reservoirs for catching the water of spring high flow. - development of schedule for designing and financial insurance. - updating of plans for final construction works of reservoirs under construction - completing of the beginning construction works of reservoirs for drinking and water supply. - updating of the designs of new reservoirs in conformity with international institutions	I	621 000	State budget, concessions, foreign funds	MRDPW MRDPW MRDPW MRDPW, municipal mayors	MOEW, municipal mayors MF MOEW, MF, municipal mayors MOEW, MF	Immediately Immediately 2001 2001	2001 2001 2005 2002
- construction of new reservoirs				MRDPW, mayors, concessionaires	MOEW, MF	2003	2010
2. Comliting of designs of local importance for decision of problems in drinking and domestic water supply	I	125 000 30 000	State and municipal budget, fund "Regional initiatives"	MRDPW, MTCR, municipal mayors	MOEW, governors	2001	2010
3. Ensuring of alternative regulated water volume for the capital. - completing of the investigations and updating of the design for alternative regulating water volume. (overbuilding of "Beli Iskyr", building of "Eleshnica" or other variant	I	200 000	Capital municipal budget, foreign funds, concessionaire	Capital Municipal mayor	MRDPW, MOEW, MF	2001	2003

<p>) in conformity with international institution requirements.</p> <p>-construction of the reservoir.</p>						2004	2010
<p>4. Ensuring of duplicate water supply from ground waters in regions with water supply in critical condition</p>	I	100 000	State budget, municipal budget	MRDPW	MOEW,MF municipal, mayors	2003	2010
<p>5.Reconstruction of water supply networks of settlement water supply systems.</p> <p>- assessment of water loss from settlement water supply networks</p> <p>- assessment of water loss from main pipelines and pressure reservoirs.</p> <p>- measures for decreasing the water loss</p> <p>- dividing into districts of settlement water supply networks in order to decrease the water loss in cases of eliminating the damages .</p> <p>- zoning of settlement water supply networks in order to decrease water loss.and numbers of damages as a result of higher pressure.-- automating of links “pumping station – reservoir “for sharply decrease of passing water quantities .</p> <p>- designing of projects and</p>	I	2 016 200	State budget, municipal budget, personal capital funds of “W SSC” concessionaires	MRDPW, Municipal mayors		2001	2010

working out of selective replacement or cleaning of the most worked out parts of pipeline branches							
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Total (thousand lw) 3 062 200

Total (thousand lw) 3 110 000

ENSURING OF IRRIGATION WATER

IMMEDIATE MEASURES

1	2	3	4	5	6	7	8
1. Prohibition on drawing out the reservoirs and micro reservoirs for of fishing and fish breeding	L			MOEW	CM municipal mayors, governors	Immediately	
2. Municipal mayor obliging when giving the opportunities for concessions for reservoirs and microreservoirs to stipulate duties for concessionaires – ensuring the irrigation water in irrigation periods.	L			MOEW, MRDPW	CM, municipal governors, mayors	Immediately	

3.Utilization for irrigation the water from numerous reservoirs, built with this purpose. - cleaning up the reservoir socket. - ensuring the water supply on priority prices. -prohibition on drinking water supply to be used for irrigation in cases, there are available irrigation water quantities in reservoirs.	I L L		concessionaire	concessionaire MAF.municipal mayors MOEW	Municipal mayors concessionaires MRDPW, MAF	2001 Immediately Immediately	2010
4. Restriction of using the surface ground water for irrigation	L / O			MOEW	MAF, municipal mayors	Immediately	

MEASURES DEMANDING TO DEVELOP A PLAN AND A SCHEDULE FOR REALIZATION

1	2	3	4	5	6	7	8
1. Stimulation and maintenance of organized water consumption for irrigation by water associations. Maintenance the repair of building water supply set, buying of irrigation technique and adopting of water saving technologies for irrigation.	L/O/I	100 000	State budget	MAF,MF	MOEW municipal mayors	2001	2010
2. Stimulation of constructing facilities for run off regulation rivers and gullies with small catchment areas for ensuring of some farms demands .	I	35 000	State budget , Interest free credit from NFA,	Municipal mayor, governors	MOEW,MF , MAF	2001	2010
3 Decreasing the waste in hydromelioration systems -covering of irrigation canals. -building of irrigation pipelines	.	200 300	State budget - NFA	MAF	MF governors, municipal mayors	2002	2010

4. Stimulation of applying some other different measures for save use of irrigation water. - improved gravitated irrigation, low pressure irrigation. - drop by drop irrigation	O / I O / I	100 000 70 000	State budget State budget	MAF, MF MAF, MF	MOEW, governors, municipal mayors MOEW, governors, municipal mayors	2002 2001	2007 2007
5. Reconstruction and renovation of pumping stations and derivations on the Danube river and other rivers in the country for the purposes of irrigation.	O/I	25 000	State budget, concessionaires	MAF	MOEW, governors, municipal mayors	2001	2005
Total(thousand.lw)		530 300					

CREATING OF KNOWLEDGE AND AWARENESS FOR WATER RESOURCE SAVINGS

1	2	3	4	5	6	7	8
1. Energetic media policy – regular public information for the major problems and for the measures that have to be undertaken for solving these problems.	O			MOEW,MAF MH,MRDP W governors, municipal mayors	BNR,BNT and other media	Immediately	
2 Creation of new public attitude toward water, where the very important moment has to be the save water uses in the conditions of trend to drought in Mediterranean region.	O			NGO,s MOEW ,MRDPW MAF,MH, governors, municipal mayors		Immediately	
3.Creation of regular editing for public information about the water resources condition in the country at local and national level.	O			BNR,BNT, other media	MOEW, MAF, local government authorities ,water supply associations, associations for irrigation	Immediately	
4. Making popular the water savings methods for irrigation.	O			MAF	MOEW,media	Immediately	
5, Public control and “blue telephone” in municipalities,”W SSC” in cases of thefts and water wastes	O /I	60	State budget, municipal budget	MOEW,MR DPW municipal mayors		Immediately	
6. Involving the non governmental organizations in the problem of water savings and decreasing of the water waste	O			MEW	MRDD,MAF, municipal mayors	Immediately	
Total (thousand.lw.)	60						
TOTAL FOR IMPLEMENTING THE PROGRAM (thousand lw)	4 790 117						

**PRIORITY PROJECTS FOR FINANCING THAT DECIDED PROBLEMS
CONNECTED WITH THE CRISIS IN DRINKING WATER SUPPLY**

Objects	Intended for water supply to:	Number of maintained population	Necessary funds		Institutions and organizations		Term for construction
			Price (hil,lw)	Source of financing	leading	supporting	Beginning
1	2	3	4	5	6	7	8
HW ."Cherni Osum"	Troian Lovech Pleven	44 359 75 038 161 000	150 000	State budget Municipal budget foreign financing, concessionaire	MRDPW	MOEW, municipal mayors	2003
HW" "Raiantci	Pernik	105 000	120 000	State budget municipal budget, foreign financing concessionaire	MRDPW	MOEW, municipal mayor	2004
HW "Rakotcevitca"	Blagoev grad	80 882	50 000	State budget	MRDPW	MOEW, municipal mayor	2002
HW Kijstendil	Kijstendil	73 346	65 000	State budget	MRDPW	MOEW, municipal mayors	2001

	2	3	4	5	6	7	8
HW “Biala”	Sevlievo	45 446	80 000	State budget municipal budget, foreign financing concessionaire	MRDPW	MOEW,municipal mayor	2002
HW “Plovdivci	Madan	15 967	35 000	State budget, municipal budget, foreign financing, concessionaire	MRDPW	MOEW,municipal mayors	2002
HW “Neikovci	Triavna	15 447	25 000	State budget	MRDPW	MOEW,municipal mayors	2002
Completi g the overbuildi ng of “Hristo Smirnsk i”	Gabrovo	80 032	6 000	State budget	MRDPW	MOEW,municipal mayors	2001
Overbuildi ng of “Srechens ka bara”	Vratca Montana Berkovitca	91 416 63 769 29 985	25 000	State budget	MRDPW	MOEW,municipal mayors	2001
“Indge voivoda”	Southern Black Sea region	60 000	25 000	State budget	MRDPW	MOEW,municipal mayors	2001
“Luda Iana”	Panagjurishte	15 000	15 000	State budget	MRDPW	MOEW,municipal mayors	2002
“Titca”	Shumen Turgo vishte	180 000	25 000	State budget	MRDPW	MOEW,municipal mayors	2002

Списък на използваните съкращения в текста и таблиците

MOEW – Ministry of environment and water

MAF- Ministry of agriculture and forest

MRDPW- Ministry of regional development and public works

BAS,- Bulgarian academy of sciences

NIMH – National institute of metrology and hydrology

SAEER- State Agency of energy resources

CM- Council of ministry

MTC – Ministry of transport and communication

MIA – Ministry of internal affairs

MH- Ministry of health

WSSC- Water supply and sewage company

NFA – National fund of agriculture

GIS- Geographic information system

BNR- Bulgarian national radio

BNT- Bulgarian national television

MF- Ministry of finance

MFA – Ministry of foreign affairs

NGO,s- non governmental organizations